

REMARKS

By the present Amendment, Applicant amends claims 11 and 18 to more appropriately define the invention and adds new claims 25 and 26 to protect additional aspects related to the present invention. Claims 11-26 are pending.

In the Office Action, the Examiner rejected claims 11, 17, 18, and 24 under 35 U.S.C. § 102(e) as anticipated by Nito et al., U.S. Patent No. 5,659,411 ("Nito") and rejected claims 12-16 and 19-23 under 3 U.S.C. § 103(a) as unpatentable over Nito in view of Tanaka et al., U.S. Patent No. 5,459,481 ("Tanaka"). Applicant respectfully traverses these rejections for the following reasons.

Response to Rejections under 35 U.S.C. § 102(e)

In response to the Examiner's rejection under 35 U.S.C. § 102(e), Applicant respectfully submits that Nito fails to anticipate claims 11, 17, 18, and 24.

In order to properly anticipate Applicant's claimed invention under 35 U.S.C. § 102(e), each and every element of the claim in issue must be found, either expressly described or under principles of inherency, in a single prior art reference. Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." See M.P.E.P. § 2131 (8th Ed., Aug. 2001), quoting *Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). Finally, "[t]he elements must be arranged as required by the claim." M.P.E.P. § 2131, p. 2100-69.

Claim 11 is directed to an antiferroelectric liquid crystal panel having an antiferroelectric liquid crystal between a pair of substrates, which comprises a driving circuit adapted to output, *inter alia*, "a layer structure controlling voltage waveform having a frequency of 1 Hz to 100 Hz and a voltage in the range of +10 V to +50 V or -10 V to -50 V, which changes a layer structure of the antiferroelectric liquid crystal from

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a chevron structure to a bookshelf structure." Claim 18 is directed to a method of driving an antiferroelectric liquid crystal panel comprising, *inter alia*, "a display driving voltage waveform for normal display is output ... [and] is switched for an optional length of time to a layer structure controlling voltage waveform having a frequency of 1 Hz to 100 Hz and a voltage in the range of +10 V to +50 V or -10 V to -50 V, which changes a layer structure of the antiferroelectric liquid crystal from a chevron structure to a bookshelf structure."

Nito is directed to an optical device having an optically transparent birefringent medium. See, e.g. Nito, Fig. 1A. Nito discloses that the optical device is driven by a voltage square wave. Nito, Fig. 23C. The Examiner alleged that Nito discloses an antiferroelectric liquid crystal display having a temperature change that reduces the layer spacing in the antiferroelectric liquid crystal (OA, p. 3). However, the effect disclosed in Nito is that the cone angle of liquid crystal molecules changes with temperature, not the layer spacing. See Nito, col. 11, lines 41. Layer spacing relates to the distance between cones of the liquid crystal molecules, whereas cone angle relates to the rotation angle of liquid crystal molecules. See Nito, Fig. 3. Thus, even if the cone angle changes as described in Nito, the layer spacing does not change. Hence, Nito neither discloses nor suggests at least that the layer structure controlling voltage waveform which changes a layer structure of the antiferroelectric liquid crystal from a chevron structure to a bookshelf structure. Therefore, Nito fails to anticipate claims 8 and 11. For at least this reason, claims 11 and 18 are allowable.

Furthermore, Nito neither discloses nor suggests that both the layer structure controlling voltage waveform and the display voltage waveform are output from a driving

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circuit, and that the "driving voltage waveform control circuit" comprises switches which switch the output to the layer structure controlling voltage waveform for an optional length of time as recited in claim 11. Claim 18 recites similar recitations. Thus, Nito fails to anticipate claims 11 and 18 for at least this reason.

Claims 17 and 24 are allowable at least due to their dependence from allowable claims 11 and 18, respectively.

Response to Rejections under 35 U.S.C. § 103(a)

In response to the rejections under 35 U.S.C. § 103(a), Applicant respectfully submits that a *prima facie* case of obviousness has not been established for claims 12-16 and 19-23.

In order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all the claim elements. Furthermore, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." See M.P.E.P. § 2143.01, quoting *In re Wilson*, 424 F.2d 1382, 1385, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970). Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify a reference or to combine reference teachings. Third, there must be a reasonable expectation of success. See M.P.E.P. § 2143, pp. 2100-122 to 127.

Claims 12-16 depend from independent claim 11 and therefore incorporate all the elements of that claim. Claims 19-23 depend from independent claim 18 and therefore incorporate all the elements of that claim. As advanced above, Nito neither discloses nor suggests at least that the layer structure controlling voltage waveform which changes a layer structure of the antiferroelectric liquid crystal from a chevron

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structure to a bookshelf structure as recited in claims 11 and 18 and incorporated in claims 12-16 and 19-23.

Moreover, Tanaka also fails to teach or suggest at least this claim element. Tanaka merely discloses a conventional scanning waveform in which the voltage is set to peak levels during a selection period and then set at a lower voltage during a non-selection period. Tanaka, Fig. 2. Hence, Nito and Tanaka, taken alone or in combination, fail to teach or suggest all the elements of claims 12-16 and 19-23. Accordingly, a *prima facie* case of obviousness has not been established for these claims. For at least this reason, claims 12-16 and 19-23 are allowable.

New Claims

Applicant adds new claims 25 and 26 to protect additional aspects related to the present invention. Claims 25 and 26 depend from independent claims 11 and 18, respectively, and therefore incorporate all the elements of those claims. As advanced above, the inventions disclosed in Nito and Tanaka fail to disclose the invention recited in claims 11 and 18. Thus, claims 25 and 26 are patentable over Nito and Tanaka at least due to their dependence from allowable claims 11 and 18.

Conclusion

In view of the foregoing, Applicant respectfully requests the reconsideration and reexamination of this application and the timely allowance of the pending claims.

Attached hereto is a marked-up version of the changes made to the claims by this Amendment. The attachment is captioned "**Appendix to Amendment of February 24, 2003**".

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Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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Appendix to Amendment of February 24, 2003

IN THE CLAIMS:

Please amend claims 11 and 18 as follows:

11. (Amended) An antiferroelectric liquid crystal panel, having an antiferroelectric liquid crystal between a pair of substrates, which comprises a driving circuit adapted to output:

a layer structure controlling voltage waveform having a frequency of 1 Hz to 100 Hz and a voltage in the range of +10 V to +50 V or -10 V to -50 V, which changes a layer structure of the antiferroelectric liquid crystal from a chevron structure to a bookshelf structure; and

a display driving voltage waveform for normal display,

wherein the driving circuit comprises switches which switch the output from the display driving voltage waveform to the layer structure controlling voltage waveform for an optional length of time.

18. (Amended) A method of driving an antiferroelectric liquid crystal panel having an antiferroelectric liquid crystal between a pair of substrates, wherein

a display driving voltage waveform for normal display is output, and

the display driving voltage waveform is switched for an optional length of time to a layer structure controlling voltage waveform having a frequency of 1 Hz to 100 Hz and a voltage in the range of +10 V to +50 V or -10 V to -50 V, [is output for an optional

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length of time] which changes a layer structure of the antiferroelectric liquid crystal from a chevron structure to a bookshelf structure.

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